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Ephemeris for Physical Observations of

Greenwich Noon. 1902.		P.	L−O.	B.	Λ−L.	*B.*	Q.	E.
		°	°	°	°	°	°	°
Oct.	5	3·03	231·89	+20·90	...	+10·66	289·26	29·24
	7	3·82	233·14	21·19	...	11·02	289·56	29·51
	9	4·60	234·39	21·47	29·22	11·38	289·85	29·79
	11	5·37	235·64	21·74	...	11·73	290·12	30·06
	13	6·14	236·89	22·00	...	12·08	290·38	30·33
	15	6·90	238·14	22·25	...	12·43	290·63	30·59
	17	7·66	239·39	22·49	30·75	12·77	290·87	30·85
	19	8·41	240·63	22·71	...	13·11	291·10	31·11
	21	9·16	241·88	22·92	...	13·44	291·32	31·36
	23	9·90	243·12	23·12	...	13·77	291·53	31·61
	25	10·64	244·36	23·31	32·24	14·10	291·73	31·86
	27	11·37	245·60	23·48	...	14·42	291·92	32·11
	29	12·09	246·83	23·64	...	14·74	292·10	32·34
	31	12·80	248·06	23·79	...	15·06	292·28	32·58
Nov.	2	13·51	249·29	23·94	33·67	15·37	292·44	32·81
	4	14·21	250·52	24·08	...	15·68	292·59	33·04
	6	14·90	251·74	24·20	...	15·99	292·73	33·26
	8	15·58	252·95	24·31	...	16·29	292·86	33·48
	10	16·25	254·16	24·41	34·99	16·59	292·98	33·68
	12	16·92	255·37	24·49	...	16·88	293·09	33·89
	14	17·58	256·57	24·56	...	17·17	293·19	34·09
	16	18·22	257·75	24·62	...	17·46	293·28	34·28
	18	18·86	258·93	24·67	36·26	17·74	293·36	34·47
	20	19·49	260·11	24·71	...	18·02	293·43	34·65
	22	20·11	261·28	24·75	...	18·29	293·50	34·82
	24	20·71	262·44	24·78	...	18·55	293·56	34·98
	26	21·30	263·58	24·80	37·35	18·81	293·61	35·13
	28	21·88	264·72	24·81	...	19·07	293·65	35·28
	30	22·44	265·84	24·80	...	19·32	293·68	35·41
Dec.	2	22·99	266·95	24·78	...	19·57	293·70	35·54
	4	23·53	268·05	24·75	38·23	19·81	293·71	35·66
	6	24·07	269·15	24·71	...	20·05	293·72	35·77
	8	24·59	270·23	24·66	...	20·29	293·72	35·87
	10	25·10	271·30	24·61	...	20·52	293·71	35·96
	12	25·59	272·35	+24·55	38·91	+20·75	293·69	36·04

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Mars, 1902–3. By A. C. D. Crommelin.

Greenwich Noon. 1902.		⊙	Light Time.	Appar. Diam.	Defect of Illumination.	Central Meridian.	Passage of Zero Meridian.	
		°	m	″	″	°	h m	h m
Oct.	5	...	16·836	4·60	0·29	106·86	17 20·64	18 0·61
	7	...	16·725	4·62	0·30	87·42	18 40·57	19 20·53
	9	27·46	16·612	4·66	0·31	67·98	20 0·49	20 40·45
	11	...	16·498	4·69	0·32	48·54	21 20·40	22 0·36
	13	...	16·383	4·72	0·33	29·10	22 40·31	23 20·25
	15	...	16·264	4·76	0·33	9·67	...	0 0·19
	17	31·13	16·144	4·79	0·34	350·24	0 40·13	1 20·06
	19	...	16·023	4·82	0·35	330·81	2 0·00	2 39·94
	21	...	15·900	4·86	0·36	311·38	3 19·87	3 59·81
	23	...	15·775	4·90	0·37	291·95	4 39·74	5 19·67
	25	34·77	15·648	4·94	0·37	272·52	5 59·60	6 39·52
	27	...	15·519	4·98	0·38	253·10	7 19·44	7 59·36
	29	...	15·388	5·02	0·39	233·68	8 39·28	9 19·19
	31	...	15·256	5·07	0·40	214·26	9 59·10	10 39·00
Nov.	2	38·38	15·123	5·11	0·41	194·85	11 18·90	11 58·79
	4	...	14·988	5·16	0·42	175·44	12 38·67	13 18·55
	6	...	14·851	5·21	0·43	156·04	13 58·42	14 38·29
	8	...	14·712	5·26	0·43	136·64	15 18·15	15 58·01
	10	41·97	14·572	5·31	0·44	117·25	16 37·87	17 17·72
	12	...	14·430	5·36	0·45	97·86	17 57·56	18 37·40
	14	...	14·287	5·41	0·46	78·48	19 17·23	19 57·05
	16	...	14·143	5·47	0·47	59·10	20 36·86	21 16·66
	18	45·53	13·997	5·53	0·48	39·73	21 56·46	22 36·24
	20	...	13·850	5·58	0·49	20·38	23 16·00	23 55·74
	22	...	13·701	5·64	0·50	1·04	...	0 35·45
	24	...	13·551	5·70	0·51	341·71	1 15·16	1 54·87
	26	49·08	13·400	5·77	0·52	322·39	2 34·57	3 14·26
	28	...	13·248	5·84	0·53	303·08	3 53·94	4 33·61
	30	...	13·094	5·91	0·54	283·78	5 13·27	5 52·92
Dec.	2	...	12·939	5·98	0·55	264·49	6 32·56	7 12·18
	4	52·62	12·783	6·05	0·56	245·21	7 51·79	8 31·39
	6	...	12·627	6·12	0·57	225·94	9 10·98	9 50·56
	8	...	12·469	6·20	0·59	206·68	10 30·12	11 9·66
	10	...	12·311	6·28	0·60	187·43	11 49·19	12 28·71
	12	56·14	12·152	6·36	0·61	168·20	13 8·23	13 47·70

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Greenwich Noon. 1902.		P.	L−O.	B.	A−L.	*B.*	Q.	E.
		°	°	°	°	°	°	°
Dec.	14	26·07	273·38	+24·49	...	+20·97	293·67	36·10
	16	26·53	274·40	24·42	...	21·19	293·64	36·15
	18	26·98	275·40	24·34	...	21·40	293·60	36·20
	20	27·42	276·38	24·25	39·29	21·60	293·56	36·23
	22	27·84	277·35	24·16	...	21·80	293·51	36·24
	24	28·24	278·30	24·06	...	21·99	293·45	36·24
	26	28·63	279·23	23·96	...	22·18	293·38	36·22
	28	29·01	280·14	23·85	39·38	22·36	293·30	36·18
	30	29·38	281·03	23·73	...	22·54	293·21	36·13
1903. Jan.	1	29·73	281·90	23·61	...	22·71	293·11	36·06
	3	30·07	282·75	23·49	...	22·88	293·02	35·97
	5	30·39	283·57	23·37	39·08	23·04	292·92	35·85
	7	30·70	284·36	23·25	...	23·20	292·82	35·72
	9	31·00	285·13	23·12	...	23·35	292·72	35·57
	11	31·28	285·88	22·99	...	23·50	292·61	35·40
	13	31·54	286·60	22·86	38·37	23·64	292·50	35·20
	15	31·79	287·29	22·73	...	23·77	292·38	34·98
	17	32·03	287·95	22·60	...	23·90	292·26	34·73
	19	32·25	288·59	22·47	...	24·02	292·14	34·46
	21	32·46	289·19	22·34	37·17	24·14	292·01	34·15
	23	32·65	289·76	22·22	...	24·25	291·87	33·82
	25	32·83	290·29	22·10	...	24·36	291·73	33·45
	27	33·00	290·78	21·99	...	24·46	291·60	33·05
	29	33·15	291·24	21·88	35·41	24·55	291·47	32·62
	31	33·29	291·66	21·77	...	24·64	291·32	32·15
Feb.	2	33·41	292·05	21·66	...	24·72	291·15	31·65
	4	33·52	292·39	21·56	...	24·79	290·98	31·11
	6	33·61	292·69	21·47	33·03	24·86	290·80	30·53
	8	33·69	292·95	21·39	...	24·92	290·61	29·91
	10	33·76	293·17	21·32	...	24·98	290·42	29·24
	12	33·81	293·35	21·26	...	25·03	290·21	28·54
	14	33·85	293·47	21·21	29·94	25·08	290·01	27·79
	16	33·87	293·52	21·17	...	25·12	289·80	26·99
	18	33·87	293·54	21·14	...	25·15	289·57	26·14
	20	33·86	293·51	21·11	...	25·17	289·33	25·24
	22	33·85	293 45	21·09	26·02	25·19	289·08	24·29
	24	33·81	293·34	+21·10	...	+25·20	288·83	23·30

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Greenwich Noon. 1902.		⊙	Light Time.	Appar. Diam.	Defect of Illumination.	Central Meridian.	Passage of Zero Meridian.			
		°	m	"	"	°	h	m	h	m
Dec.	14	...	11·992	6·45	0·62	148·99	14	27·16	15	6·61
	16	...	11·831	6·54	0·63	129·79	15	46·04	16	25·45
	18	...	11·670	6·63	0·64	110·61	17	4·84	17	44·20
	20	59·64	11·508	6·72	0·65	91·45	18	23·53	19	2·84
	22	...	11·346	6·82	0·66	72·31	19	42·14	20	21·42
	24	...	11·183	6·92	0·67	53·19	21	0·68	21	39·92
	26	...	11·019	7·02	0·68	34·09	22	19·14	22	58·35
	28	63·14	10·856	7·13	0·69	15·00	23	37·54	...	
	30	...	10·692	7·24	0·70	355·93	0	16·71	0	55·86
1903.										
Jan.	1	...	10·528	7·35	0·71	336·88	1	34·99	2	14·08
	3	...	10·363	7·46	0·71	317·86	2	53·13	3	32·16
	5	66·64	10·199	7·58	0·72	298·86	4	11·17	4	50·15
	7	...	10·036	7·70	0·73	279·89	5	29·10	6	8·03
	9	...	9·873	7·83	0·73	260·94	6	46·93	7	25·80
	11	...	9·710	7·96	0·74	242·02	8	4·63	8	43·43
	13	70·13	9·548	8·10	0·75	223·13	9	22·21	10	0·96
	15	...	9·386	8·24	0·75	204·27	10	39·68	11	18·36
	17	...	9·225	8·38	0·75	185·43	11	57·01	12	35·63
	19	...	9·064	8·53	0·75	166·62	13	14·22	13	52·79
	21	73·63	8·904	8·68	0·75	147·84	14	31·33	15	9·83
	23	...	8·745	8·84	0·74	129·09	15	48·29	16	26·70
	25	...	8·588	9·00	0·74	110·38	17	5·07	17	43·40
	27	...	8·432	9·17	0·74	91·70	18	21·70	18	59·96
	29	77·12	8·277	9·34	0·73	73·06	19	38·18	20	16·35
	31	...	8·124	9·52	0·72	54·46	20	54·48	21	32·57
Feb.	2	...	7·974	9·70	0·72	35·90	22	10·62	22	48·63
	4	...	7·826	9·88	0·71	17·38	23	26·61	...	
	6	80·62	7·679	10·07	0·69	358·89	0	4·56	0	42·44
	8	...	7·534	10·26	0·68	340·45	1	20·26	1	58·03
	10	...	7·392	10·46	0·66	322·05	2	35·76	3	13·44
	12	...	7·253	10·66	0·64	303·70	3	51·07	4	28·64
	14	84·13	7·116	10·87	0·63	285·40	5	6·16	5	43·63
	16	...	6·983	11·08	0·61	267·14	6	21·06	6	58·44
	18	...	6·853	11·29	0·59	248·93	7	35·77	8	13·04
	20	...	6·726	11·50	0·56	230·77	8	50·25	9	27·40
	22	87·65	6·603	11·71	0·53	212·67	10	4·49	10	41·52
	24	...	6·485	11·93	0·49	194·62	11	18·49	11	55·40

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Greenwich Noon. 1903.	P.	L—O.	B.	A−L.	*B.*	Q.	E.
Feb. 26	33°·75	293°·16	+21°·12	° ...	+25°·21	288°·56	22°·24
28	33·67	292·90	21·14	...	25·21	288·26	21·14
Mar. 2	33·57	292·60	21·17	21·28	25·21	287·85	19·99
4	33·45	292·24	21·22	...	25·20	287·33	18·78
6	33·32	291·83	21·28	...	25·17	286·7	17·52
8	33·17	291·38	21·35	...	25·14	286·1	16·21
10	33·00	290·87	21·43	15·63	25·11	285·3	14·86
12	32·82	290·30	21·52	...	25·07	284·4	13·46
14	32·62	289·70	21·63	...	25·03	283	12·02
16	32·40	289·07	21·74	...	24·98	281	10·55
18	32·16	288·39	21·86	9·22	24·92	279	9·04
20	31·90	287·67	22·00	...	24·86	277	7·52
22	31·63	286·91	22·14	...	24·79	274	5·99
24	31·35	286·13	22·28	...	24·71	270	4·46
26	31·06	285·34	22·42	2·23	24·62	264	3·05
28	30·76	284·53	22·56	...	24·53	...	2·04
30	30·44	283·70	22·71	...	24·43	...	2·14
Apr. 1	30·10	282·85	22·85	...	24·33	147	3·26
3	29·77	282·03	23·00	5·04	24·22	140	4·73
5	29·45	281·23	23·14	...	24·10	134	6·29
7	29·13	280·45	23·29	...	23·98	129	7·87
9	28·81	279·68	23·43	...	23·85	125	9·46
11	28·50	278·93	23·57	12·08	23·71	121·9	11·03
13	28·20	278·20	23·71	...	23·56	120·6	12·59
15	27·90	277·53	23·84	...	23·41	119·6	14·11
17	27·63	276·93	23·97	...	23·25	118·8	15·60
19	27·37	276·36	24·09	18·59	23·09	118·0	17·06
21	27·13	275·82	24·21	...	22·92	117·36	18·47
23	26·91	275·30	24·33	...	22·75	116·86	19·84
25	26·72	274·85	24·44	...	22·57	116·43	21·16
27	26·55	274·48	24·55	24·41	22·38	116·06	22·43
29	26·41	274·16	24·65	...	22·19	115·73	23·65
May 1	26·29	273·90	24·75	...	21·99	115·43	24·82
3	26·20	273·70	24·85	...	21·78	115·17	25·95
5	26·13	273·55	24·95	29·27	21·56	114·97	27·01
7	26·09	273·46	25·04	...	21·34	114·80	28·03
9	26·08	273·43	25·13	...	21·11	114·65	29·00
11	26·08	273·47	+25·21	...	+20·88	114·51	29·92

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Greenwich Noon. 1903.		⊙	Light Time.	Appar. Diam.	Defect of Illumina-tion.	Central Meri-dian.	Passage of Zero Meridian.			
		°	m	"	"	°	h	m	h	m
Feb.	26	...	6·372	12·14	0·45	176·63	12	32·25	13	9·05
	28	...	6·263	12·35	0·41	158·68	13	45·80	14	22·50
Mar.	2	91·19	6·158	12·56	0·37	140·79	14	59·14	15	35·72
	4	...	6·058	12·77	0·33	122·95	16	12·24	16	48·69
	6	...	5·964	12·97	0·29	105·17	17	25·08	18	1·42
	8	...	5·875	13·16	0·25	87·44	18	37·71	19	13·95
	10	94·73	5·791	13·35	0·21	69·76	19	50·15	20	26·31
	12	...	5·714	13·53	0·18	52·11	21	2·44	21	38·53
	14	...	5·643	13·70	0·15	34·50	22	14·58	22	50·56
	16	...	5·578	13·86	0·12	16·94	23	26·47	...	
	18	98·30	5·520	14·01	0·09	359·44	0	2·30	0	38·12
	20	...	5·468	14·14	0·07	341·97	1	13·92	1	49·71
	22	...	5·423	14·26	0·04	324·51	2	25·49	3	1·25
	24	...	5·385	14·36	0·02	307·06	3	36·99	4	12·71
	26	101·89	5·355	14·44	0·01	289·64	4	48·41	5	24·08
	28	...	5·332	14·50	0·00	272·25	5	59·72	6	35·33
	30	...	5·316	14·54	0·00	254·87	7	10·91	7	46·51
Apr.	1	...	5·307	14·56	0·01	237·49	8	22·12	8	57·76
	3	105·51	5·305	14·57	0·02	220·09	9	33·52	10	9·19
	5	...	5·311	14·56	0·04	202·67	10	44·89	11	20·61
	7	...	5·323	14·53	0·06	185·25	11	56·34	12	32·09
	9	...	5·342	14·48	0·09	167·81	13	7·87	13	43·69
	11	109·15	5·367	14·41	0·13	150·34	14	19·56	14	55·48
	13	...	5·399	14·32	0·16	132·82	15	31·45	16	7·46
	15	...	5·437	14·22	0·21	115·25	16	43·52	17	19·62
	17	...	5·481	14·10	0·26	97·65	17	55·76	18	31·94
	19	112·82	5·531	13·97	0·31	80·01	19	8·16	19	44·44
	21	...	5·587	13·83	0·36	62·33	20	20·78	20	57·19
	23	...	5·648	13·68	0·41	44·58	21	33·66	22	10·19
	25	...	5·713	13·53	0·46	26·78	22	46·78	23	23·42
	27	116·52	5·783	13·37	0·51	8·92	...		0	0·12
	29	...	5·857	13·20	0·56	351·01	0	36·88	1	13·71
May	1	...	5·936	13·03	0·61	333·04	1	50·61	2	27·58
	3	...	6·019	12·85	0·65	315·01	3	4·61	3	41·70
	5	120·26	6·105	12·67	0·69	296·92	4	18·84	4	56·06
	7	...	6·194	12·49	0·73	278·76	5	33·35	6	10·72
	9	...	6·287	12·30	0·77	260·55	6	48·16	7	25·64
	11	...	6·382	12·11	0·81	242·28	8	3·17	8	40·74

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May 13	26°·12	273°·55	+25°·29	33°·19	+20°·64	114°·39	30°·80
15	26·18	273·68	25·36	...	20·39	114·29	31·63
17	26·26	273·87	25·43	...	20·14	114·19	32·41
19	26·37	274·11	25·50	...	19·88	114·10	33·15
21	26·50	274·40	25·56	36·26	19·62	114·01	33·85
23	26·65	274·73	25·62	...	19·35	113·94	34·51
25	26·82	275·11	25·68	...	19·07	113·88	35·13
27	27·01	275·54	25·73	...	18·79	113·82	35·72
29	27·22	276·02	25·77	38·55	18·50	113·76	36·26
31	27·45	276·53	25·80	...	18·21	113·71	36·77
June 2	27·70	277·08	25·83	...	17·91	113·66	37·25
4	27·95	277·66	25·85	...	17·61	113·62	37·70
6	28·22	278·29	25·86	40·18	17·30	113·58	38·11
8	28·52	278·97	25·87	...	16·98	113·54	38·50
10	28·82	279·67	25·87	...	16·66	113·50	38·86
12	29·12	280·40	25·86	...	16·33	113·46	39·20
14	29·44	281·15	25·85	41·22	16·00	113·42	39·5
16	29·76	281·93	25·84	...	15·66	113·37	39·79
18	30·08	282·74	25·82	...	15·32	113·33	40·05
20	30·41	283·58	25·79	...	14·97	113·28	40·29
22	30·75	284·43	25·75	41·83	14·61	113·24	40·51
24	31·10	285·31	25·69	...	14·25	113·20	40·71
26	31·46	286·23	25·61	...	13·88	113·15	40·89
28	31·82	287·17	25·51	...	13·51	113·11	41·05
30	32·19	288·16	25·40	41·98	13·14	113·06	41·19
July 2	32·55	289·18	25·29	...	12·76	113·02	41·32
4	32·91	290·20	25·17	...	12·37	112·96	41·43
6	33·27	291·23	25·04	...	11·98	112·89	41·52
8	33·62	292·26	24·90	41·78	11·59	112·81	41·61
10	33·97	293·31	24·75	...	11·19	112·72	41·68
12	34·31	294·37	24·59	...	10·79	112·63	41·73
14	34·65	295·45	24·42	...	10·39	112·53	41·77
16	34·98	296·55	24·25	41·39	9·98	112·43	41·80
18	35·31	297·67	24·07	...	9·56	112·32	41·82
20	35·63	298·80	23·87	...	9·14	112·20	41·82
22	35·94	299·94	23·65	...	8·72	112·07	41·82
24	36·24	301·09	23·41	40·77	8·29	111·94	41·81
26	36·53	302·25	+23·16	...	+7·86	111·80	41·78

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Greenwich Noon. 1903.		☉	Light Time.	Appar. Diam.	Defect of Illumination.	Central Meridian.	Passage of Zero Meridian			
		°	m	"	"	°	h	m	h	m
May	13	124·03	6·480	11·93	0·84	223·97	9	18·35	9	56·03
	15	...	6·580	11·75	0·87	205·60	10	33·78	11	11·61
	17	...	6·682	11·57	0·90	187·17	11	49·51	12	27·46
	19	...	6·786	11·39	0·93	168·69	13	5·45	13	43·48
	21	127·85	6·893	11·22	0·96	150·16	14	21·56	14	59·70
	23	...	7·001	11·05	0·98	131·58	15	37·90	16	16·16
	25	...	7·110	10·89	1·00	112·95	16	54·48	17	32·84
	27	...	7·221	10·73	1·01	94·28	18	11·23	18	49·66
	29	131·71	7·333	10·56	1·02	75·57	19	28·12	20	6·64
	31	...	7·445	10·39	1·04	56·82	20	45·22	21	23·84
June	2	...	7·558	10·23	1·05	38·02	22	2·51	22	41·22
	4	...	7·672	10·08	1·06	19·18	23	19·96	23	58·73
	6	135·61	7·787	9·93	1·07	0·31	...		0	37·53
	8	...	7·903	9·79	1·07	341·41	1	16·37	1	55·24
	10	...	8·018	9·65	1·08	322·46	2	34·14	3	13·11
	12	...	8·134	9·51	1·08	303·47	3	52·14	4	31·22
	14	139·56	8·250	9·37	1·08	284·47	5	10·32	5	49·41
	16	...	8·366	9·24	1·07	265·45	6	28·51	7	7·62
	18	...	8·483	9·11	1·07	246·40	7	46·76	8	25·94
	20	...	8·599	8·99	1·07	227·32	9	5·16	9	44·41
	22	143·56	8·715	8·87	1·07	208·22	10	23·70	11	3·03
	24	...	8·831	8·75	1·06	189·08	11	42·39	12	21·79
	26	...	8 946	8·64	1·06	169·90	13	1·22	13	40·68
	28	...	9 061	8·53	1·06	150·70	14	20·16	14	59·66
	30	147·61	9·176	8·42	1·05	131·48	15	39·17	16	18·70
July	2	...	9·291	8·32	1·04	112·25	16	58·24	17	37·79
	4	...	9·405	8·22	1·04	93·00	18	17·35	18	56·94
	6	...	9·519	8·12	1·03	73·73	19	36 55	20	16·19
	8	151·72	9·632	8·03	1·02	54·45	20	55·85	21	35·52
	10	...	9·744	7·94	1·01	35·15	22	15·20	22	54·90
	12	...	9 856	7·85	1·00	15·84	23	34·61	...	
	14	...	9·967	7·76	0·99	356·51	0	14·34	0	53·08
	16	155·88	10·078	7·67	0·98	337·17	1	33·83	2	13·61
	18	...	10·188	7·59	0·97	317·81	2	53·41	3	33·22
	20	...	10·298	7·51	0·96	298·44	4	13·05	4	52·89
	22	...	10·407	7·43	0·94	279·06	5	32·73	6	12·58
	24	160·10	10·515	7·35	0·93	259 67	6	52·43	7	32·30
	26	...	10·622	7·28	0·92	240·27	8	12 18	8	52·08

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Greenwich Noon. 1903.	P.	L−O.	B.	A−L.	*B.*	Q.	E.
July 28	36°·81	303°·42	+22°·90	...°	+7°·42	111°·65	41°·74
30	37·07	304·60	22·63	...	6·98	111·49	41·70
Aug. 1	37·32	305·78	22·35	40·02	6·54	111·32	41·65
3	37·56	306·97	22·06	...	6·09	111·14	41·59
5	37·79	308·16	21·75	...	5·64	110·95	41·51
7	38·00	309·37	21·43	...	5·19	110·74	41·44
9	38·19	310·59	21·10	39·16	4·74	110·53	41·35
11	38·36	311·80	20·76	...	4·28	110·31	41·25
13	38·52	313·02	20·40	...	3·82	110·08	41·14
15	38·66	314·25	20·03	...	3·35	109·84	41·02
17	38·79	315·48	19·65	38·27	2·88	109·59	40·91
19	38·90	316·72	19·26	...	2·41	109·33	40·79
21	38·99	317·96	18·86	...	1·94	109·05	40·66
23	39·06	319·20	18·45	...	1·47	108·76	40·53
25	39·11	320·44	18·02	37·35	0·99	108·46	40·38
27	39·14	321·69	17·58	...	0·51	108·15	40·24
29	39·15	322·94	17·13	...	+0·03	107·83	40·09
31	39·13	324·19	16·67	...	−0·46	107·49	39·93
Sept. 2	39·10	325·45	16·20	36·43	0·94	107·14	39·77
4	39·04	326·71	15·72	...	1·42	106·79	39·61
6	38·96	327·97	15·22	...	1·90	106·42	39·44
8	38·86	329·24	14·71	...	2·38	106·04	39·27
10	38·73	330·50	14·20	35·53	2·86	105·65	39·09
12	38·58	331·77	13·68	...	3·35	105·24	38·91
14	38·41	333·04	13·15	..	3·85	104·82	38·73
16	38·21	334·30	12·61	...	4·35	104·39	38·54
18	37·98	335·57	12·05	34·68	4·84	103·95	38·35
20	37·73	336·84	11·49	...	5·33	103·49	38·15
22	37·46	338·11	10·92	...	5·82	103·02	37·95
24	37·16	339·39	10·34	...	6·31	102·55	37·75
26	36·84	340·66	9·76	33·88	6·80	102·07	37·54
28	36·50	341·94	9·17	...	7·29	101·57	37·33
30	36·13	343·22	8·57	...	7·78	101·05	37·12
Oct. 2	35·74	344·50	+7·96	...	−8·26	100·52	36·90

A slight alteration has been made in the assumed position of *Mars'* north pole, the value being R.A. 317°·27, N.P.D. 37°·36 at the commencement of 1903.

These are deduced from the revised values recently published

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Greenwich Noon. 1903.	⊙	Light Time.	Appar. Diam.	Defect of Illumination.	Central Meridian.	Passage of Zero Meridian.	
	°	m	″	″	°	h m	h m
July 28	...	10·728	7·21	0·91	220·86	9 31·99	10 11·91
30	...	10·834	7·14	0·90	201·44	10 51·84	11 31·77
Aug. 1	164·38	10·939	7·07	0·89	182·01	12 11·71	12 51·66
3	...	11·043	7·00	0·88	162·58	13 31·61	14 11·57
5	...	11·146	6·93	0·87	143·14	14 51·53	15 31·50
7	...	11·248	6·87	0·85	123·69	16 11·48	16 51·46
9	168·71	11·349	6·81	0·84	104·24	17 31·44	18 11·44
11	...	11·450	6·75	0·83	84·78	18 51·45	19 31·45
13	...	11·550	6·70	0·82	65·32	20 11·46	20 51·48
15	...	11·649	6·64	0·81	45·85	21 31·51	22 11·54
17	173·11	11·747	6·58	0·80	26·38	22 51·58	23 31·62
19	...	11·845	6·53	0·79	6·90	...	0 11·67
21	...	11·942	6·47	0·78	347·42	0 51·72	1 31·76
23	...	12·038	6·42	0·77	327·94	2 11·80	2 51·84
25	177·57	12·132	6·37	0·76	308·46	3 31·89	4 11·94
27	...	12·226	6·32	0·75	288·98	4 51·99	5 32·05
29	...	12·320	6·27	0·73	269·49	6 12·11	6 52·18
31	...	12·413	6·23	0·72	250·00	7 32·25	8 12·33
Sept. 2	182·09	12·505	6·18	0·71	230·50	8 52·41	9 32·49
4	...	12·596	6·14	0·70	211·00	10 12·58	10 52·67
6	...	12·685	6·10	0·69	191·50	11 32·76	12 12·8
8	...	12·774	6·05	0·68	172·00	12 52·93	13 33·02
10	186·67	12·863	6·01	0·67	152·50	14 13·11	14 53·19
12	...	12·951	5·97	0·66	133·00	15 33·28	16 13·36
14	...	13·038	5·93	0·65	113·50	16 53·45	17 33·55
16	...	13·124	5·89	0·64	94·00	18 13·65	18 53·75
18	191·31	13·210	5·85	0·63	74·49	19 33·85	20 13·95
20	...	13·295	5·81	0·62	54·98	20 54·06	21 34·16
22	...	13·379	5·77	0·61	35·47	22 14·27	22 54·38
24	...	13·463	5·74	0·60	15·96	23 34·49	...
26	196·01	13·546	5·70	0·59	356·45	0 14·60	0 54·72
28	...	13·628	5·67	0·58	336·93	1 34·85	2 14·98
30	...	13·709	5·64	0·57	317·41	2 55·11	3 35·23
Oct. 2	...	13·790	5·61	0·56	297·89	4 15·36	

by Dr. Hermann Struve in the *Mémoires de l'Académie Imp. des Sciences de St-Pétersbourg*, 8ème série (*Math. Phys.*), vol. viii. No. 3.

The difference from the previous values is only nominal—

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being $+0°·08$ in R.A., $-0°·05$ in N.P.D. Struve's results include a correction for the precessional movement of *Mars'* equator, the annual recession of the point O on its orbit being $7''·07$. I did not, however, note this point in time to introduce the correction in the present ephemeris, but hope to do so in future years. The effect on L—O is only about $0°·04$, which is practically negligible.

P denotes the position angle of the axis of *Mars* ; L—O+180° the right ascension of the Earth referred to the plane of *Mars'* equator, and reckoned from O, the point of the vernal equinox of *Mars'* northern hemisphere ; Λ—O+180° the corresponding quantity for the Sun ; B *B* the declinations of the Earth and Sun, reckoned from the plane of *Mars'* equator ; Q the position angle of the greatest defect of illumination ; *q* the amount of the same ; E the areocentric angle between the Earth and Sun.

Thus Λ—L is the angle between the meridians of *Mars* which are central to the Earth and to the Sun ; the point where an image of the Sun should be looked for is distant $\frac{1}{2}(\Lambda-\mathrm{L})$ in longitude from the centre of the disc, on the side towards the fully illuminated limb, and is in areocentric latitude $\frac{1}{2}(\mathrm{B}+B)$.

⊙ is the areocentric longitude of the Sun referred to the plane of *Mars'* orbit, and reckoned from O (defined above). This column gives at once the season on *Mars* ; ⊙ = 0° corresponds to March 20 on the Earth, ⊙ = 30° to April 20, and so on.

In accordance with more than one suggestion sent to me, I have altered the value of the diameter of the planet at distance unity from $9''·60$ to $9''·30$. This is the absolute diameter deduced by Dr. See from a discussion of all the available material. It requires to be increased by the irradiation correction, but as that varies with the size and quality of the telescope, it is better to leave it to the observers to apply the correction. The value used in the *Nautical Almanac* is $9''·36$.

The zero meridian and period of rotation have been carried on unchanged from Mr. Marth's last ephemeris, the assumed sidereal rotation in 24^{h} of mean time being $350°·89202$; the equivalent period of sidereal rotation is $24^{\mathrm{h}}\ 37^{\mathrm{m}}\ 22^{\mathrm{s}}·654$ of mean time.

In response to my request for observations of transits of spots across the central meridian, Mr. Lowell has sent me the following observations of the transit of *Fastigium Aryn* :—

Observed G.M.T. of Transit.				Earlier than Ephemeris.	Weight.
1901.	d	h	m	m	
May	4	14	30	8	5
	8	17	3	10	2
June	9	13	15	16	2
	10	14	3	8	2
July	18	14	35	15	2

From which he deduces that the ephemeris' time was too late by $10^{\mathrm{m}}·5$.

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I quote his own words as regards the method of observation :—

"These transits were got by setting the micrometer wire parallel to the direction of the axis as given in the ephemeris, and then noting the moment at which the snow-cap and the marking were equidistant from it.

"In order to determine whether the snow-cap itself were eccentrically placed with regard to the pole, I measured its position angle at various longitudes, the preliminary result of which shows its centre to be very close indeed to the pole—within less than half a degree distant. The result gives 0°·32 for its deviation in the direction of the meridian of 90°–270°, so that even this amount would delay, not hasten, the transit of the zero meridian. Consequently the position of the snow-cap will not explain the action, which would seem to be due to error in the epoch or the rotation period, or both."

With regard to this discordance I would point out that Mr. Marth in his last ephemeris altered his zero meridian to agree with Mr. Lowell's observations of 1894, so that we have only the effect of seven years' rotation to consider.

Now the adopted period can scarcely be in error by more than $0^{s}{\cdot}07$, or twenty-five seconds per annum ; this would only amount to three minutes in seven years.

From the method of Mr. Lowell's observations any error in the angle P would affect the time of transit ; so that if his discordance of 10^{m} is real, I think that the larger portion of it is probably due to error in the assumed position of *Mars*' axis.

M. Antoniadi has communicated to me some observations of the transit of the preceding edge of *Mare Acidalium* across the central meridian, from which he concludes that the error of my ephemeris was inappreciable. I have therefore not considered the evidence sufficiently strong to make any alteration in my constants ; but those who desire can adapt the ephemeris approximately to Mr. Lowell's observations by adding 2°·5 to the central meridian and subtracting 11^{m} from the transit of zero meridian. I may mention that the second decimal place in this last column has no pretence to accuracy, and is merely inserted to diminish cumulative error in the interpolation.

Benvenue, 55 *Ulundi Road, Blackheath, London, S.E.:*
1902 *June* 3.